STATE OF MONTANA

BULLETIN

OF THE

Department of Public Health

Vol. 6 May 15, 1913 No. 2

MONTANA STATE BOARD OF HEALTH

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EMIL STARZ, Ph. D.
State Bacteriologist,

ALLAN TUFFORD,
Consulting Architect.

HELENA, MONTANA.

Published Monthly at Helena, by the State Board of Health.

"The science of disease prevention, if properly applied, can add fifteen years to the present average length of human life."—Prof. Irving Fisher, Yale.

This Bulletin will be mailed monthly to any person in Montana upon request mailed to the Secretary of the State Board of Health at Helena.

DEPARTMENT OF PUBLIC HEALTH.

The School Laws, as revised by the last session of the Legislature of the State of Montana, provide as follows:

Section 1601. No school house shall hereafter be erected, repaired, or enlarged in any school district of the State at an expense which shall exceed five hundred dollars, until the plans and specifications thereof shall have been submitted to the State Board of Health, and its approval endorsed thereon; provided, that districts of the second and third class shall also have the approval of the Superintendent of Public Instruction. Such plans and specifications shall show in detail the ventilation, the heating and lighting of such building.

1602. Floor Spase, Air, Light. The Board of Health shall not approve plans for the erection of any school building or addition thereto or remodeling thereof, unless the same shall provide, (a) at least fifteen square feet of floor space and two hundred cubic feet of air space for each pupil to be accommodated in each study or recitation room therein; (b) at least thirty cubic feet of pure air per minute per pupil shall be furnished by a satisfactory ventilating system, which should also provide means for exhausting the foul or vitiating air from the room.

The light shall come from the left and rear of each school room, and the window space shall be not less than one-seventh of the floor space of each room.

Section 1603. Penalties. The County Treasurer shall not make any payments on any contract arising under the provisions of this chapter until the contractor furnishes a certified statement signed by the State Board of Health that the plans and specifications of the school building to be erected or remodeled, have been fully approved by the State Board of Health.

Section 1604. Suggestive Plans. It shall be the duty of the State Board of Health to furnish to all districts of the third class suggestive plans for school buildings to be erected in conformity with the above rules.

Section 1605. Vestibules. No one and two room school houses shall be erected without a vestibule of reasonable size.

In view of the fact that this law has placed a large amount of extra work upon the State Board of Health, the Secretary at the last meeting asked permission to appoint a consulting

architect. This permission the Board granted him and the consulting architect was duly appointed.

Many letters have been received at this office since this law was passed asking for plans and specifications for school buildings soon to be erected in the various districts throughout the State.

While it is not the duty of this Board to furnish blue prints and full plans and specifications, but rather to offer suggestions as to light, ventilation and heating, we have decided to furnish such plans for one room school houses, thinking that in many of the rural districts it is almost impossible for the trustees to employ an architect. These plans for one room school houses are complete and are now ready for distribution on application from clerks of any school districts wishing the same. Application for the same should be made through the County Superintendent of Schools.

It is the intention of this office, co-operating with the office of the State Superintendent of Schools, to issue a booklet giving suggestive plans for school buildings larger than one room. It will take a few months before this can be completed. In the meantime, before any school building, larger than one room, is erected, plans and specifications for the same must be sent to this office for approval.

MEETING OF THE STATE HEALTH OFFICERS' ASSOCIATION.

The State Health Officers' Association met in Great Falls May the 12th and 13th. In the absence of the President, Dr. A. C. Wilson, Forsyth, Dr. D. Claiborn, County Health Officer of Sweet Grass County, from Big Timber, was chosen as temporary President.

The first paper on the program was by Prof. W. M. Cobleigh of Bozeman, entitled, "Sanitary Qualities of Surface Waters and Water Purification." The Committee report of the National Association for the Prevention of Pollution of Rivers and Water Ways was discussed in the light of conditions of surface waters in Montana. A general discussion of methods of water purification and the necessity of the installation of such processes in various parts of Montana were discussed.

After the discussion of this paper the members were taken

in automobiles to Little Chicago Pumping Station to view the hypochlorite purifying plant recently installed at that place under the direction of the State Board of Health.

On the second day's session the following program was carried out: "The Scarlet Fever Epidemic at Utica, Mont.; The Sanitary Survey Thereof," by Dr. A. W. Deal, Lewistown, County Health Officer of Fergus County. Second, "Methods to Be Employed in Controlling an Epidemic of Measles," by Dr. E. G. Balsam, local Health Officer of Billings.

A short address was then given by Mr. Arthur, deputy Dairy Commissioner. In his address Mr. Arthur stated that it was the desire of the Department which he represented to co-operate with the State Board of Health in improving the sanitary conditions of the dairies in the State of Montana.

The afternoon session was taken up almost entirely by a discussion of the spotted fever situation in the Bitter Root Valley. Prof. R. A. Cooley, of Bozeman, read a very interesting and instructive paper on the Rocky Mountain Spotted Fever Tick. Dr. W. J. Butler, State Veterinarian, gave an account of the work that is now being done for the eradication of the tick in the Bitter Root Valley.

All the papers were thoroughly discussed and much interest was manifested. A more extended account of some of the problems that were under discussion at this meeting will be referred to at a later date.

At the conclusion of the regular program a busines s meeting was held and the following officers were appointed: Dr. E. G. Balsam, President; Dr. A. W. Deal, Vice President, and the Secretary of the State Board of Health is ex-officia secretary of this Association.

The next meeting will be held in Lewistown in July, 1914, the two days previous to the meeting of the Montana Medical Association.

ANTIMENINGITIS VACCINATION.

(By Wade H. Frost, Past Asst. Surg. U. S. Public Health Service.)

Inoculation with killed cultures of the meningococcus has recently been advocated as a prophylactic for cerebrospinal meningitis, especially by Sophian.* He has used for this purpose cultures grown in glucose agar, killed by heating to 50° C. for one hour. He advocates three injections of 500 million, 1,000 million, and 1,000 million, respectively, at intervals of seven days.

As to the efficacy of this vaccination, Sophian and Black (loc. cit.) have shown by agglutination and complement-fixation tests that in man the vaccination causes the development of specific antibodies similar to those developed in the course of an attack of cerebrospinal meningitis, and presumably indicating a certain degree of immunity. They state that several hundred persons were vaccinated in Kansas City during the epidemic there in 1911, none of whom subsequently developed the disease. In the absence of comparative statistics this statement alone does not justify any conclusion as to the prophylactic value of the procedure. They also state that about 100 persons were vaccinated in Dallas, Tex., during an epidemic of meningitis in 1911. Two of these, nurses, each of whom had received two inoculations, developed cerebrospinal meningitis some weeks later. Both recovered.

On the whole their statements furnish no evidence of the phophylactic value of this vaccination, while they do indicate, by the instances cited above, that it does not afford absolute protection against infection.

At present an opinion as to the value of this vaccination can be based only on indirect evidence, viz, the development of antibodies in the blood of vaccinated persons, and by analogy, the efficacy of similar inoculations in the prevention of typhoid fever and bubonic plague.

Statistical evidence of the value of any prophylactic against cerebrospinal meningitis is extremely difficult to obtain, because of the epidemiological peculiarities of this disease. It does not show a constant tendency to spread. In one community it may become epidemic, while when introduced into another contiguous community at the same time under circumstances to all appearances equally favorable for the development of an

epidemic, the infection may die out after causing only a few cases. Again, even in epidemics, the proportion of the population attacked is relatively small (from 0.1 to 1 per cent); and in this, as in other respects, epidemics in different localities vary widely without discoverable cause. Since it is impossible, in any given community, to foretell the extent to which cerebrospinal meningitis will spread when introduced, it is equally impossible to estimate the efficacy of such preventive measures as may have been carried out. Only very extensive and very careful statistics could prove the prophylactic value of vaccination or any other measure of prevention.

The objections which may be brought forward against antimeningitis vaccination are the danger of using an incompletely sterilized culture; the possibility of inducing a temporary state of increased susceptibility ("negative phase"); the discomfort due to the local and general reaction to inoculation, and the labor and expense involved.

The first-mentioned danger is probably negligible. The danger of inducing a negative phase of immunity is an unknown quantity. It has not been proven to be a real danger in antityphoid and antiplague vaccinations, and need not, for the present, be considered as a valid objection to antimeningitis vaccination. Such danger as may exist would in all probability be reduced by the simultaneous injection of antimeningitis serum.

According to Sophian and Black, a local reaction, more or less painful, is common. There may be no general constitutional reaction, but frequently there are mild symptoms, headache, malaise, and fever, lasting for 24 hours. More severe symptoms are said to have been noted, but to be unusual.

Even granting the efficiency of antimeningitis vaccination as a prophylactic, the labor and expense would be very great in proportion to the results attained. In dealing with an epidemic of smallpox, for example, a disease which, when epidemic, may be expected to attack a very large proportion of those exposed who are unvaccinated, the results attained by whosesale vaccination are relatively great. One may count on preventing by this means from 25 to 50 cases of smallpox in every 100 exposed persons not previously vaccinated.

In vaccination against a disease such as meningitis, which is by nature of rare occurrence, one may count on the preven-

tion at most of only one to ten cases in each thousand persons vaccinated. It is evident that unless the vaccination is done on a very extensive scale it offers but little chance of materially reducing the prevalence of the disease. Notwithstanding its possible dangers, and the lack of proof that it is efficient, antimeningitis vaccination deserves full consideration as a prophylactic measure, because of the inefficiency of other preventive measures and the terrible consequences of the disease.

It would seem wise at present to approve the vaccination of all who may desire it, in communities where the disease is epidemic, or where an epidemic seems likely to occur, especially of physicians and nurses who are likely to come into intimate contact with cases. The question will often arise whether persons already intimately exposed to cerebrospinal meningitis should be vaccinated and whether there is more chance of protection or of inducing a phase of increased susceptibility. There is ample ground for an honest difference of opinion on the subject; but the burden of proof is apparently on those who assert that there is danger from the "negative phase."

It does not appear advisable at present to attempt to make antimeningitis vaccination compulsory, nor to divert to wholesale vaccination large sums of money, which might otherwise be applied, perhaps with more certainty of results, to the early diagnosis, serum treatment, and hospital care of developed cases.

Whenever antimeningitis vaccination is employed it should be done as an experiment. Careful records should be obtained of each person vaccinated and of the incidence of meningitis among the vaccinated and the unvaccinated population of each community.

His Own Medicine.—The druggist had died and his spirit appeared before the Golden Gate. "What do you want here?" asked St. Peter. "I'd like to come in," answered the spirit. "I'm sorry that we can't let you into Heaven, but we have something just as good that I can cheerfully recommend."—Exchange.

Communicable Diseases Reported to the State Board of Health for the Month of April, 1913.

SMALLPOX—Cases of Smallpox were reported as follows: Blaine, 2; Beaverhead, 1; Custer, 10; Cascade (exclusive of Great Falls), 5; Great Falls, 3; Dawson, 2; Anaconda, 1; Fergus, 12; Kalispell, 4; Hill, 2; Lincoln, 14; Missoula county, 1; Musselshell, 10; Livingston, 1; Rosebud, 1; Silver Bow (exclusive of Butte), 3; Butte, 3; Teton, 12; Billings, 2. Total, 89. Total last month, 79.

DIPHTHERIA—Cases of Diphtheria were reported as follows: Custer, 1; Great Falls, 3; Anaconda, 1; Hill, 2; Livingston, 1; Silver Bow (exclusive of Butte), 2; Butte, 3; Billings, 2. Total, 15. Total last month, 12.

SCARLET FEVER—Cases of Scarlet Fever were reported as follows: Blaine, 7; Beaverhead, 1; Cascade (exclusive of Great Falls), 10; Great Falls, 18; Dawson, 1; Anaconda, 2; Fergus, 19; Hill, 1; Jefferson, 4; Lewis and Clark, 9; Helena, 3; Lincoln, 5; Madison, 15; Livingston, 16; Silver Bow (exclusive of Butte), 11; Butte, 28; Teton, 1; Valley, 4; Billings, 3. Total, 158. Total last month, 120.

TYPHOID FEVER—Cases of Typhoid Fever were reported as follows: Beaverhead, 1; Cascade (exclusive of Great Falls), 2; Great Falls, 4; Dawson, 4; Fergus, 1; Jefferson, 1; Madison, 1; Park (exclusive of Livingston), 1; Yellowstone (exclusive of Billings), 1; Billings, 4. Total, 20. Total last month, 39.

MEASLES—Cases of Measles were reported as follows: Blaine, 13; Custer, 12; Carbon, 8; Chouteau, 32; Great Falls, 12; Dawson, 1; Anaconda, 5; Fergus, 8; Flathead, 3; Hill, 7; Lewis and Clark (exclusive of Helena), 1; Helena, 1; Lincoln, 4; Madison, 1; Meagher, 12; Missoula county, 1; Park (exclusive of Livingston), 5; Livingston, 73; Powell, 2; Rosebud, 23; Stillwater, 1; Silver Bow (exclusive of Butte), 70; Butte, 101; Teton, 2; Valley, 4; Yellowstone (exclusive of Billings), 5; Billings, 1. Total, 408. Total last month, 305.

WHOOPING COUGH—Cases of Whooping Cough were reported as follows: Livingston, 1; Sweet Grass, 2. Total, 3. No back records.

TUBERCULOSIS—Cases of Tuberculosis were reported as follows: Flathead, 3; Hill, 1; Madison, 1. Total, 5. No back records.

C. S. MENINGITIS—Broadwater, 1; Chouteau, 1; Great Falls, 1. Total, 3. No back records.

DEATHS (EXCLUSIVE OF STILLBIRTHS) REPORTED TO THE STATE BOARD OF HEALTH FOR THE MONTH OF APRIL, 1913. ARRANGED ACCORDING TO COUNTIES AND CITIES.

	Spotted Fever	Small Pox	Tuberculosis	Diphtheria	Scarlet Fever	Measles	Typhoid Fever	Meningitis	Whooping Cough	Pneumonia	Nephritis	Organic Heart Disease	Malignant Tumors	Acute Intestinal Diseases	Violence	Suicide	Alcoholism	All Other Causes	Totals
Beaverhead	..	..	..	..	1	..	..	..	..	..	..	1	..	..	2	..	1	2	7
Broadwater	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	3
Carbon	..	..	..	..	..	..	..	..	..	1	..	..	..	1	2	1	..	2	7
Cascade (Excl. of)	..	..	..	..	2	..	..	..	..	..	..	1	..	..	2	1	..	2	8
Great Falls	..	..	2	..	4	..	4	1	..	5	..	4	1	..	4	1	..	24	50
Chouteau	..	..	2	..	2	..	..	..	..	2	..	1	..	..	..	..	..	5	10
Custer	..	..	..	..	..	..	..	2	1	1	2	1	..	..	..	1	..	5	13
Dawson	..	..	1	..	..	..	1	..	..	4	..	1	2	..	5	..	..	12	26
Deer Lodge (Excl. of)	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	8
Anaconda	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	2	..	9	14
Fergus	..	..	..	..	2	..	..	..	..	6	1	..	..	..	3	..	..	8	20
Flathead (Excl. of)	..	..	1	..	..	..	..	..	..	2	1	1	1	1	1	2	1	4	15
Kalispell	..	..	..	..	..	..	..	1	..	2	1	1	..	..	..	..	..	4	9
Gallatin (Excl. of)	..	..	..	..	1	..	..	..	..	..	1	..	..	..	1	..	..	4	7
Bozeman	..	..	..	..	..	..	..	..	..	..	2	3	..	..	..	..	..	1	6
Granite	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2
Jefferson	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	7	9
Lewis and Clark (Excl. of)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Helena	..	..	..	..	3	..	..	..	..	4	3	4	..	..	2	2	1	10	29
Lincoln	..	1	..	..	1	..	..	1	..	1	..	1	..	..	2	..	..	2	9
Madison	..	..	2	..	..	..	..	..	..	1	..	..	..	..	1	..	..	2	6
Meagher	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	2
Missoula (Excl. of)	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	3	4
Missoula City	1	..	..	..	..	1	..	..	..	3	2	..	..	..	2	..	..	7	16
Musselshell	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	3
Park (Excl. of)	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	1	4
Livingston	..	..	..	..	..	..	..	..	..	3	1	1	..	..	..	..	..	3	8
Powell	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	3
Ravalli	..	..	..	..	..	..	..	..	..	..	3	1	..	..	1	..	..	1	6
Rosebud	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	5
Sanders	..	..	2	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	5
Silver Bow (Excl. of)	..	..	5	..	..	..	..	2	..	1	1	1	..	1	7	..	..	2	20
Butte	..	..	8	..	5	3	..	4	..	17	4	6	3	..	6	..	2	22	80
Sweet Grass	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2	4
Teton	..	..	1	..	1	..	..	..	..	4	..	..	..	..	..	..	..	6	12
Valley	..	..	..	..	..	..	..	..	..	2	..	1	..	..	1	..	..	3	7
Yellowstone (Excl. of)	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	..	..	3
Billings	..	..	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..	1	4
Blaine	..	..	2	..	..	..	..	..	..	2	..	1	..	..	..	..	..	2	7
Big Horn	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Hill	..	..	..	..	1	..	..	..	..	..	2	2	..	..	..	..	1	5	11
Sheridan	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	3
Stillwater	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
TOTALS	1	1	31	..	24	5	6	1	1	67	26	36	9	3	49	13	6	177	466

Estimated population 375,000
Monthly death rate per 1,000 population ..... .804
Annual death rate per 1,000 population 9.64
*Stillbirths, 27.

BIRTHS (EXCLUSIVE OF STILLBIRTHS) REPORTED TO THE STATE BOARD OF HEALTH FOR THE MONTH OF APRIL, 1913, AND COMPARATIVE BIRTH AND DEATH RECORD IN THE STATE.

	Males	Females	Totals	Deaths	Excess of births	Excess of deaths
Beaverhead	2	1	3	7	...	4
Broadwater	1	...	1	3	...	2
Carbon	14	14	28	7	21	...
Cascade (Excl. of)	16	12	28	8	20	..
Great Falls	21	20	41	50	..	9
Chouteau	2	3	5	10	..	5
Custer	14	10	24	13	11	..
Dawson	21	17	38	26	12	..
Deer Lodge (Excl. of)	1	1	2	8	..	6
Anaconda	8	15	23	14	9	..
Fergus	13	14	27	20	7	..
Flathead (Excl. of)	14	11	25	15	5	..
Kalispell	7	11	18	9	9	..
Gallatin (Excl. of)	7	4	11	7	4	..
Bozeman	9	11	20	6	14	..
Granite	1	2	3	2	1	..
Jefferson	2	3	5	9	..	4
Lewis and Clark (Excl. of)	5	4	9	1	8	..
Helena	15	11	26	29	..	3
Lincoln	6	2	8	9	..	1
Madison	9	2	11	6	5	..
Meagher	2	3	5	2	3	..
Missoula (Excl. of)	9	4	13	4	9	..
Missoula City	17	18	35	16	19	..
Musselshell	7	4	11	3	8	..
Park (Excl. of	2	4	6	4	2	..
Livingston	8	6	14	8	6	..
Powell	5	4	9	3	6	..
Ravalli	12	8	20	6	14	..
Rosebud	4	5	9	3	6	..
Sanders	1	3	4	5	..	1
Silver Bow (Excl. of)	15	14	29	20	9	..
Butte	39	45	84	80	4	..
Sweet Grass	4	4	8	4	4	..
Teton	18	15	33	12	21	..
Valley	12	10	22	7	15	..
Yellowstone (Excl. of)	9	15	24	3	21	..
Billings	9	14	23	4	19	..
Big Horn	..	1	1	1	..	..
Blaine	8	4	12	7	5	..
Hill	14	15	29	11	18	..
Sheridan	4	9	13	3	10	..
Stillwater	..	5	5	1	4	..
TOTALS	387	378	765	466	329	35

Monthly Report of E. Starz, Bacteriologist, Helena, Montana.

April 3, 1913. Blood examination (Widal Reaction) for Dr. R. Horsky, Helena, Montana. Found: Negative.

April 4, 1913. Pus for tubercle bacilli for Dr. Fligman, Helena, Montana. Found: No. B. T., but Streptococci.

Pus for Gonococci, for Dr. Fligman, Helena, Montana. Found: Negative.

Cerebrospinal fluid for Dr. Porter, Fort Benton, Montana. Found: Diplococcus intracellularis meningitides.

April 5, 1913. Cerebrospinal fluid for Dr. J. F. Murphy, Fort Benton, Montana. Found: No diplococci intracellularis meningtidis or any other germs.

April 10, 1913. Blood for Widal Test for Dr. Shore, Gardiner, Montana. Found: Negative.

April 11, 1913. Sputum for Pneumococci for Dr. Ph. Cole, Helena, Montana. Found: Pneumococci.

April 12, 1913. Cerebrospinal fluid for Dr. Fligman, Helena, Montana, for diplococci, intravellularis, meningitidis, and bac. tub. Found: Negative.

April 14, 1913. Diphtheria cultures for Dr. R. Meidell, Havre, Montana, for Bac. Diphtheriae. Found: Negative.

April 15, 1913. Cerebrospinal fluid for Dr. Smith, Townsend, Montana, for Bac. intracellularis, meningitidis. Found: Negative.

April 16, 1913: Sputum for Bac. Tub. for Dr. Riddell, Helena, Montana. Found: Negative.

April 17, 1913. Sputum for Pneumococci for Dr. Ph. Cole, Helena, Montana. Found: Negative.

April 19, 1913. Culture for Bac. Diphtherae for Dr. S. M. Sine, Columbus, Montana. Found: Streptococci.

April 20, 1913. Pus from a wound for Dr. C. W. Smith, Townsend, Montana. Found: Staphylococcus pyogenes aureus.

April 22, 1913. Pus for Gonococci for Dr. Fligman, Helena, Montana. Found: Positive.

April 23, 1913. Sputum for Bac. Tub. for Dr. J. Treacy, Helena, Montana. Found: Negative.

Urine for Bac. Tub. for Dr. W. J. Perry, Billings, Montana. Found: Negative.

April 24, 1913: Sputum for Bac. Tub. for Dr. Horsky, Helena, Montana. Found: Negative.

April 25, 1013. Urine for Bac. Tub. for Dr. McCabe, Helena, Montana. Found: Negative.

Two cultures for Diphtheria for Dr. King, Helena, Montana. Found: Streptococci.

Two cultures for release after Diphtheria, for Dr. Balsam, Billings, Montana. Found: Strapylococci.

Sputum for Bac. Tub. for Dr. Horsky, Helena, Montana Found: Negative.

Pus for Gonococci for Dr. B. C. Brooke, Helena, Montana. Found: Negative.

April 26, 1913. Sputum for Bac. Tub. for Dr. Horsky, Helena, Montana. Found: Negative.

Pus for Gonococci for Dr. M. Dean, Helena, Montana. Found: Positive.

April 27, 1913. Pus for Gonococci for Dr. B. C. Brooke, Helena, Montana. Found: Positive.

April 28, 1913. Sputum for Bac. Tub. for Dr. Riddell, Helena, Montana. Found: Negative.

Respectively submitted,

EMIL STARZ,

Bacteriologist.

DISEASES TRANSMISSIBLE FROM HOUSE PETS AND DOMESTICATED ANIMALS TO MAN.

By E. Starz, Bacteriologist, Helena, Montana.

That our house pets and domesticated animals may be the cause of disseminating certain diseases among the human family is an established fact, and many cases of that kind are on record. Yet many lovers of pet dogs, cats, birds, etc., are not aware of the dangers which such animals present to them when afflicted with some disease.

It is a well known fact that the cat is suspectible to diphtheria, and the records are full of cases of transmission of that dreadful disease to children playing with such afflicted pets. Likewise are birds carriers of dipththeria.

Dogs are infested with many kinds of tape worms (Taenia), among them Taenia Echinococcus, the eggs of which cause hydatid cysts. It is, therefore, not strange to find persons who are constantly surrounded with dogs suffering frequently from hydatid cysts and tape worms.

Barbers' Iitch (Tinea Tonsurans), a very contagious and persistent skin affection, is frequently transmitted from cats and dogs to man. The same is true of Favus or Tinea Favosa,

which is caused by a parasitic mould called "Achorion Schoenleinni," producing yellow scaly crust on the skin.

Another disease of the dog which is transmissible to man is the sarcoptic itch, caused by microscopic mite called "Sarcoptes Scabiei." Hydrophobia is still another disease of the dog and cat which is transmitted to man by being bitten by these animals and many persons die from it yearly.

The disease called "Glanders' or "Farcy" is caused by Bacillus Mallei and numerous cases of infection from such afflicted animals to man are known. The greatest number of cases of natural glanders infection occur among hostlers, drivers, farmers, horsebutchers and other habitual handlers of horses. The becilli generally gain entrance through abrasions or wounds of the skin. Laboratory workers occasionally become infected through the respiratory organs (nose and lungs) by spilling accidentally culture material. Glanders infection is highly fatal.

Anthrax, charbon, splentic fever or wool sorters' disease is a disease of animals and easily transmitted to man. The name "wool sorters' disease" is derived from the fact that handlers of hides from cows or wool from sheep, which have died from anthrax, occasionally contract the disease. Actinomycosis or "Lumpy Jaw" is a disease caused by a ray fungus generally found in cattle or swine; rarely in horses or sheep; occasionally cases having been observed in deer, elephants, dogs and cats. Infection in man generally occurs by inoculation with "Lumpy Jaw' material carrying the ray fungus, "Actinomycosis Bovis.'"

Human tuberculosis is certainly transmitted to dogs, cats and birds. Many investigators and observers cite cases where dogs, cats and parrots, presenting all the lesions of tuberculosis, were shown to have contracted it from contact with human beings. While there are no recorded cases, there can scarcely be a natural doubt that man may in a similar way become infected through them and that their tuberculosis constitutes an actual danger to man.

These examples should suffice to call the attention of the public to the danger which is connected in keeping pet animals in our apartments. Any pet animal showing signs of disease should be removed from the living room and isolated. We owe that precaution to ourselves and others.

DIVISION OF FOODS AND DRUGS.

Dr. W. F. Cogswell, Secretary State Board of Health, Food and Drug Commissioner.

F. J. O'Donnell, Inspector.

LABORATORY STAFF.

W. M. Cobleigh, Chemist.

C. E. Mollet, Director, Drug Analysis.

D. L. Weatherhead, Analyst.

D. B. Swingle, Bacteriologist.

Carl Gottschalck, Assistant in Chemistry.

LABORATORY REPORT.

Foods and Water Analyzed During the Month of April.

SUMMARY.

Classification.	Number Legal.....	Number Illegal....	Total.....
Bottled Beverages	7	1	8
Butter	..	3	3
Cream	13	7	20
Ice Cream	5	1	6
Milk	25	9	34
Tomato Catsup	1	..	1
Water			13
TOTAL			85

MISCELLANEOUS.

Lab. No.	Date.	Description.	Remarks.
1737	3-23-13	Mineral Water. Brooks & Powell, Red Lodge, Mont. On label: Red Lodge Water. Sparkling, Refreshing. Bottled by Red Lodge Bottling Works. On cap: Mineral Water. Artifiicial.	Complies with the standard.
1828	4-18-13	Root Beer. M. W. Milligan, Miles City. On label: Old Country Style Root Beer. Artifiicial coloring. Purity guaranteed. Manufactured from pure distilled water. Aromatic.	Complies with the standard. Short in volume.
1829	"	Lemon Sour. M. W. Milligan, Miles City. On label: Old Country Style "Lemon Sour." Artificial coloring. Purity guaranteed. Manufactured from pure distilled water. Aromatic.	Complies with the standard. Short in volume. Color: Napthol Yellow S, permissible.
1830	"	Distilled Water. M. W. Milligan, Miles City, Mont. On label: Distilled Water. Pure Artesian. On neck: Carbonated. On cap: Mineral Water.	Misbranded.
1831	"	Strawberry Soda. M. W. Milligan, Miles City, Mont. On label: Old Country Style Strawberry. Artificial coloring. Purity guaranteed. Manufactured from pure distilled water. Aromatic. On cap: Artificial color and flavor.	Complies with the standard. Short in volume. Color: Orchil, permissible.
1832	"	Banana Soda. M. W. Milligan, Miles City, Mont. On label: M. W. Milligan, Miles City, Mont. On cap: Banana artificial flavor and color.	Complies with the standard. Short in volume. Color: Napthol Yellow S, permissible.
1833	"	Lemon Soda. On label: M. W. Milligan, Miles City, Mont. On cap: Lemon Soda. Artificial flavor and color.	Complies with the standard. Short in volume.
1834	"	Ginger Ale. M. W. Milligan, Miles City, Mont. On label: Old Country Style Ginger Ale. Purity guaranteed. Manufactured from pure distilled water. Aromatic.	Complies with the standard. Short in volume.
1741	3-24-13	Butter. Retailer: B. Sconfienza, Red Lodge, Mont. Producer: Carbon County Creamery Co., Red Lodge, Mont. On label: Sunrise butter is the height of perfection. Pure, sweet and wholesome with a delicious flavor. Every package guaranteed one pound gross weight.	Misbranded; weight on package stated incorrectly. Complies with the standard.
1743	"	Butter. Retailer: Yegen Bros., Billings, Mont. On label: "Laurel" Cream Butter. Laurel Creamery, Laurel, Mont. Every pound of butter containing the Laurel Creamery Trade Mark is guaranteed first class quality.	Misbranded; weight on package stated incorrectly. In other respects, complies with the standard

Lab. No.	Date.	Description.	Remarks.
Unofficial No. 15			
	4–8–13	Butter. Retailer: John F. Abel, Lewistown, Mont. On label: Blue Valley Butter. Packed full weight. One pound Guar. by Blue Valley Creamery Co. under Food and Drug Act. June 30, 1906. Serial No. 43728.	Adulterated; low in butter fat. Misbranded; weight on package stated incorrectly.
1726	3–22–13	Tomato Catsup. Retailer: Olcott & Tolman, Red Lodge, Mont. Producer: Stone-Ordean-Wells, Duluth, Minn. On label: Hiawatha Brand Tomato Catsup. Not artificially colored. Contains no chemical preservative. Guaranteed pure.	Complies with the standard.

MILK, CREAM AND ICE CREAM—BELOW STANDARD.

Lab. No.	Date.	Obtained From.	Town.	Remarks.
		MILK.		
1768	4–8–13	Eph. Stroller	Dillon.....	Low in fats and solids.
1798	4–16–13	C. C. Lung	Billings.....	Low in fats and solids.
1812	4–17–13	Brown & Sohl	Livingston...	Low in fat.
1814	4–17–13	Grabow Hotel	Livingston...	Low in fat.
1823	4–18–13	Inter State News Co..	Miles City...	Low in solids not fat.
1825	4–18–13	W. S. Ingham	Miles City...	Low in fats and solids.
1827	4–18–13	Olive Hotel	Miles City...	Low in fat.
1838	4–19–13	Morosake & Tatsuma.	Glendive.....	Low in solids not fat.
1840	4–19–13	Jack Kotaki	Glendive.....	Low in fat.
		CREAM.		
1785	4–16–13	W. D. Davis	Billings.....	Low in fat.
1788	4–17–13	H. M. Marquette ...	Billings.....	Low in fat.
1799	4–17–13	Park Hotel	Livingston...	Low in fat.
1805	4–17–13	Park Restaurant	Livingston...	Low in fat.
1808	4–17–13	Busy Bee	Livingston...	Low in fat.
1810	4–17–13	Elite Cafe	Livingston...	Low in fat.
1813	4–17–13	Brown & Sohl	Livingston...	Low in fat.
		ICE CREAM.		
1822	4–18–13	A. L. Burton	Miles City...	Low in fat.

ICE CREAM, MILK AND CREAM—STANDARD OR ABOVE.

Lab. No.	Date.	Obtained From.	Town.	Total Solids.	Solids Not Fat.	Fat.
			ICE CREAM.			
1793	4–16–13	Mrs. Grace Edy..	Billings.....	....	....	14.0%
1794	4–16–13	Mrs. Grace Edy..	Billings.....	....	....	15.8
1795	4–16–13	W. G. Kain.....	Billings.....	....	....	16.7
1835	4–19–13	Gate City Drug Co	Glendive.....	....	....	14.3
1836	4–19–13	G. A. Pascal.....	Glendive.....	....	....	17.5

MILK.

1775	4-16-13	A. D. Horneday...	Billings.....	12.54%	9.04%	3.50%
1777	4-16-13	Yegen Bros.	Billings.....	12.54	9.04	3.50
1779	4-16-13	Ed O'Donnell	Billings.....	13.14	9.24	3.90
1780	4-16-13	Ed Schaffima	Billings.....	12.29	8.79	3.50
1782	4-16-12	J.W.Owings&Snow	Billings.....	13.26	8.66	4.60
1784	4-16-13	W. D. Davis	Billings.....	12.58	8.58	4.00
1786	4-16-13	Elmer Kowalk ...	Billings.....	13.36	9.06	4.30
1787	4-16-13	H. M. Marquette..	Billings.....	13.48	8.88	4.60
1789	4-16-13	Florian Camastrol	Billings.....	12.63	9.03	3.60
1791	4-16-13	Eeraerts Bros. ...	Billings.....	12.61	9.01	3.60
1796	4-16-13	H. J. Titus	Billings.....	17.23	9.33	7.90
1797	4-16-13	W. H. Carlin	Billings.....	17.12	9.02	8.10
1800	4-17-13	Park Hotel	Livingston...	14.25	9.60	4.65
1801	4-17-13	N P Lunch Counter	Livingston...	12.90	9.10	3.80
1804	4-17-13	Albemarle Cafe...	Livingston...	12.71	8.71	4.00
1806	4-17-13	Park Restaurant..	Livingston...	11.98	8.58	3.40
1807	4-17-13	Busy Bee	Livingston...	13.29	8.79	4.50
1809	4-17-13	Elite Cafe.....	Livingston...	12.46	9.16	3.30
1811	4-17-13	D. J. Sharpe	Livingston...	14.26	9.06	5.20
1816	4-18-13	M. E. Bailey	Miles City...	12.23	8.63	3.60
1818	4-18-13	C. H. Loud	Miles City....	12.30	8.50	3.80
1820	4-18-13	Wm. Siedentopfs..	Miles City....	12.94	8.94	4.00
1826	4-18-13	T. E. Turnipseed..	Miles City....	11.84	8.54	3.30
1837	4-19-13	L. M. Arthur	Glendive.....	12.45	8.50	3.95
1839	4-19-13	H. J. Titus	Glendive.....	12.07	8.67	3.40

CREAM.

1776	4-16-13	A. D. Horneday...	Billings.....	....	....	20.0%
1778	4-16-13	Yagen Bros.	Billings.....	....	....	25.0
1781	4-16-13	Clover Leaf Dairy	Billings.....	....	....	23.0
1783	4-16-13	J. D. Owings	Billings.....	....	....	25.6
1790	4-16-13	Florian Camastrol	Billings.....	....	....	26.5
1792	4-16-13	EeraertsBros.Dairy	Billings.....	....	....	21.7
1802	4-17-13	N P Lunch Counter	Livingston...	....	....	23.5
1803	4-17-13	Albemarle Cafe ..	Livingston...	....	....	20.5
1815	4-17-13	Grabow Hotel ...	Livingston...	....	....	23.0
1817	4-18-13	M. E. Bailey	Miles City....	....	....	22.3
1819	4-18-13	C. H. Loud	Miles City....	....	....	21.5
1821	4-18-13	Wm. Siedentopfs..	Miles City....	....	....	26.0
1824	4-18-13	InterStateNewsCo.	Miles City....	....	....	21.0

THE WATER SUPPLY OF LITTLE CHICAGO.

Water is supplied to the people of Little Chicago from the Missouri River by pumping plant operated by the Boston and Montana Reduction Works. The water is distributed to the residences in the town from storage tanks located on the hill above the smelter.

During the month of March a number of cases of typhoid fever in Little Chicago were reported to the State Board of Health. After an effort to locate the source of infection by consulting local health officers, it was decided to make a sanitary study of the water supply. Without stating details of the survey, it was decided from observations made and from the analyses tabulated below that the water supply was contaminated. The contamination at the intake of the pumping plant could come from more than one source.

The officials of the Reduction Works were advised to install a hypochlorite purifying plant to be operated until a method

of supplying water less subject to contamination could be adopted. The suggestion was cordially received and within a day or so a plant adopted from plans devised by the Minnesota State Board of Health was installed. Later, improvements were made in the plant which make it very convenient indeed for the local conditions. Nine pounds of chloride of lime were used per million gallons of water and bacteriological tests indicated that germs of the intestinal type were entirely destroyed. Later a chemical analysis showed an increase in organic matter in the water, and it was thought advisable to increase the chloride of lime, for a time at least, to twelve pounds per million gallons.

The officials of the Reduction Works are apparently much pleased with this plan of purifying the water supply of Little Chicago and are operating the plant in an efficient manner.

No typhoid cases have been reported since the purifying plant was installed.

WATER ANALYSES.

MISSOURI RIVER—BELOW GREAT FALLS.

Laboratory Number.	Description.	Free Ammonia.	Albumenoid Ammonia.	Nitrogen As Nitrites.	Nitrogen As Nitrates.	Oxygen Consumed.	Chlorine.	Bacteriological Examination.
1765	South bank 300 feet above Sixth street sewer, Great Falls....	0.016	0.26	0.012	0.1	3.0	12.7	None made.
1757	South bank 200 feet below Sixth street sewer	0.16	0.26	0.0035	0.4	2.48	13.8	None made.
1759	100 feet from north end of Fifteenth street bridge	0.028	0.14	0.004	0.05	2.87	11.96	Many B. Coli present
1758	Center of Fifteenth street bridge	0.03	0.14	0.009	0.12	2.04	13.8	Many B. Coli present
1764	40 feet from south end of Fifteenth street bridge	0.03	0.16	0.002	0.05	2.6	14.5	None made.
1760	North bank, 300 feet below Fifteenth street bridge	0.03	0.16	0.003	0.08	1.8	11.7	None made.
1761	North bank, 700 feet below Fifteenth street bridge	0.11	0.26	0.002	0.16	3.05	13.2	None made.
1762	100 feet above headgates of B. & M. power house	0.03	0.14	0.0035	0.2	2.57	11.7	None made.
1763	From pumps at power house supplying water for Little Chicago	0.02	0.10	0.001	0.1	1.65	11.7	A few B. Coli present
*1767	From pumps at power house supplying water for Little Chicago	No chemical samples taken.						A few B. Coli present

HYPOCHLORITE TREATMENT OF WATER SUPPLIES.

It has been found advisable by the State Board of Health to recommend the installation of hypochlorite purifying plants in several places in Montana where contaminated surface waters are in use for city purposes. Tests of the efficiency of these plants are being made and will be reported from time to time.

In the absence of any data suitable for publication at present, the following summary of an article by Dittoe & MacDowell in the bulletin of the Ohio State Board of Health for October, 1912, is of value to those who are concerned with water purification in Montana:

1. "Hypochlorite has come into general use as a disinfecting agent in the treatment of surface water supplies. For such supplies it is applied not only to water which receives no other treatment, but also as an aid to filtration processes.

2. "Though used to a large extent in cities of all sizes, hypochlorite is more widely employed in the larger places.

3. "Though hyopchlorite has been found effective in cases of emergency, its constant use is advisable, especially with unsafe or dangerous supplies, for the reason that it is better to prevent epidemics than to attempt to destroy them after they occur.

4. "The replies indicate that the point of application of hypochlorite is largely a matter of necessity or convenience, as it is shown that the chemical is added to the water in the different cities at various points from the intake to the distribution system.

5. "The storage period varies widely in the different cities and the replies indicate that the question of storage is often not considered, and that little is actualiy known concerning the amount of storage necessary.

6. "The average quantity of hypochlorite used in 34 cities is 8.66 pounds per million gallons, which, assuming 35 per cent. available chlorine, corresponds to 0.363 parts per million available chlorine. The comparatively small amount of this chemical used points to the necessity for careful supervision and accurate control.

7. "The bacterial results indicate that hypochlorite is effective in removing a large percentage of the bacteria in the water and practically all those of intestinal origin.

8. "Though hypochlorite usually causes no tastes, odors, or

corrosive action when used in small amounts, the occurrence of these effects depends largely upon the degree of mixture obtained and also upon the character of the water."